

WHAT IS CLAIMED IS:

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1. An ink composition comprising (a) an aldehyde copolymer ink vehicle, (b) a nonpolymeric aldehyde viscosity modifier, (c) a colorant, (d) an optional conductivity enhancing agent, (e) an optional antioxidant, and (f) an optional UV absorber.

2. An ink composition according to claim 1 wherein the ink has a melting point of no lower than about 60°C and no higher than about 140°C.

3. An ink composition according to claim 1 wherein the ink has a melt viscosity at jetting temperature of no higher than about 25 centipoise.

4. An ink composition according to claim 1 wherein the ink undergoes, upon heating, a change from a solid state to a liquid state in a period of no more than about 100 milliseconds.

5. An ink composition according to claim 1 wherein the ink exhibits an acoustic-loss value of no more than about 100 decibels per millimeter.

6. An ink composition according to claim 1 wherein the ink exhibits a conductivity of no less than about 6 log(picomho/cm).

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10. An ink composition according to claim 1 wherein the nonpolymeric aldehyde viscosity modifier is 3-hydroxy benzaldehyde, 4-hydroxy benzaldehyde, 4-benzyloxy benzaldehyde, 2-carboxy benzaldehyde, 4-nitro benzaldehyde, 2,3-dihydroxy benzaldehyde, 2,5-dihydroxy benzaldehyde, 3-hydroxy-4-methoxy benzaldehyde, 4-hydroxy-3-methoxy benzaldehyde, 4-hydroxy-3-ethoxy benzaldehyde, 4-hydroxy-3-methyl benzaldehyde, 2-hydroxy-5-nitrobenzaldehyde, 3-hydroxy-4-nitrobenzaldehyde, 4-hydroxy-3-nitrobenzaldehyde, 3,4-dibenzyloxy benzaldehyde, 3,5-dibenzyloxy benzaldehyde, 4-acetoxy-3,5-dimethoxy benzaldehyde, 2-amino-3,5-dibromo benzaldehyde, 2-benzyloxy-4,5-dimethoxy benzaldehyde, 5-bromo-2-hydroxy-3-methoxy benzaldehyde, 4-hydroxy-3,5-dimethoxy benzaldehyde, 2,3,5-trichlorobenzaldehyde, 2,3,6-trichlorobenzaldehyde, 2,4,5-trimethoxy benzaldehyde, 2,4,6-trimethoxy benzaldehyde, 3,5-dichloro-2-hydroxybenzaldehyde, 3,5-dibromo-2-hydroxybenzaldehyde, 3,5-diiodo-2-hydroxybenzaldehyde, 3,4-dihydroxy-5-methoxy benzaldehyde, 3,5-dimethyl-4-hydroxy benzaldehyde, 2,6-dimethoxybenzaldehyde, 2-nitro cinnamaldehyde, 4-(diethylamino) cinnamaldehyde, 4-acetoxy-3-methoxy cinnamaldehyde, 4-hydroxy-3-methoxy cinnamaldehyde, 2-hydroxy-1-naphthaldehyde, 2-methoxy-1-naphthaldehyde, 9-anthraldehyde, 5-bromo-2-furaldehyde, 5-nitro-2-thiophene carboxaldehyde, 9-ethyl-3-carbazole carboxaldehyde, 4-stillbene carboxaldehyde, 2-hydroxy-5-methyl-1,3-benzene dicarboxaldehyde, terephthal dicarboxaldehyde, 2-(diphenylphosphino) benzaldehyde, 1-(phenylsulfonyl)-2-pyrrolecarboxaldehyde, 1-pyrene carboxaldehyde, phenanthrene carboxaldehyde, 2-fluorene carboxaldehyde, or mixtures thereof.

11. An ink composition according to claim 1 wherein the viscosity modifier is present in the ink in an amount of no less than about 5 percent by weight of the ink and no more than about 95 percent by weight of the ink.

12. An ink composition according to claim 1 wherein the colorant is a dye.

13. An ink composition according to claim 1 wherein the colorant is a pigment.

14. An ink composition according to claim 1 containing a conductivity enhancing agent which is a complex of a dianiline and a phosphorus-containing acid.

15. An ink composition according to claim 1 containing a conductivity enhancing agent which is a complex of (a) a material which is 2,2'-dithio dianiline, 4,4'-dithiodianiline, 3,3'-methylene dianiline, 4,4'-methylene dianiline, N-methyl-4,4'-methylene dianiline, 4,4'-methylene bis(2,6-diethyl aniline), 4,4'-methylene bis(2,6-diisopropyl-N,N-dimethylaniline), 4,4'-methylene bis (N,N-dimethylaniline), 4,4'-methylene bis (2,6-dimethylaniline), 4,4'-methylene bis (3-chloro-2,6-diethylaniline), 3,3'-(sulfonyl bis(4,1-phenylene))dianiline, 4,4'-(1,3-phenylene diisopropylidene) bisaniline, or mixtures thereof, and (b) a material which is phenylphosphinic acid, dimethylphosphinic acid, methyl phosphonic acid, or mixtures thereof.

16. An ink composition according to claim 1 containing a conductivity enhancing agent in an amount of no less than about 2 percent by weight of the ink and no more than about 50 percent by weight of the ink.

17. An ink composition according to claim 1 containing an antioxidant in an amount of no less than about 0.25 percent by weight of the ink and no more than about 10 percent by weight of the ink.

18. A printing process which comprises incorporating an ink according to claim 1 into an ink jet printing apparatus, melting the ink, and causing droplets of the melted ink to be ejected in an imagewise pattern onto a recording sheet.

19. A process according to claim 18 wherein the printing apparatus employs an acoustic ink jet process, wherein droplets of the ink are caused to be ejected in imagewise pattern by acoustic beams.

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